IMAGE BASED 3-DIMENSIONAL TREATMENT PLANNING OF HDR–BRACHYTHERAPY IN CARCINOMA CERVIX: COMPARISON BETWEEN DVH AND ICRU POINT DOSES TO RECTUM & BLADDER.

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0bjectives: Purpose of this study was to compare CT Based Volumetric calculation and ICRU Reference points estimates of Radiation doses to bladder & rectum in patients with Carcinoma of Cervix treated with HDR Intracavitary Brachytherapy.

Material and Methods: 30 Carcinoma Cervix patients were treated with HDR Brachytherapy underwent post implant CT–scans.The EBRT dose was 50Gy in 25fractions.HDR Brachytherapy delivered to dose of 21Gy in 3fractions .ICRU rectal&bladder doses along with 4 additional rectal points were recorded.By using HDR Brachytherapy planning system bladder & rectum were contoured on the CT datasets.

The DVHs for rectum & bladder were calculated and the minimum doses to highest irradiated 2cc area of rectum & bladder were recorded(D2cc) for all individual fractions.The mean rectal dose compared to means of ICRU rectal point and rectal Dmax using students t–test.The mean 2cc of bladder compared with mean ICRU bladder point.The total dose combining EBRT & HDR Brachytherapy were biologically normalized to conventional 2Gy/fraction using Linear Quadratic model(α/β value of 10Gy for target & 3Gy for organs at risk).

Results: The total prescribed dose was 82.12Gy α/β 10.The mean dose to rectum was 4.48±1.22Gy for D2cc,3.66±0.65 at ICRU.The mean rectal D2cc dose differed significantly from mean dose calculated at ICRU reference point(p0.005).The mean dose to bladder was 6.00±1.90Gy for D2cc & 5.00±2.03 at ICRU.However bladder D2cc dose did not differ significantly from mean dose calculated at ICRU reference point(p=0.307).

Conclusion : OARs doses assessed by DVH were higher than ICRU point doses.Our data suggest that ICRU bladder point may be reasonable target for D2cc.However dose to ICRU rectal point doesn't appear reasonable target for D2cc.